

Claims:

1. A method for detecting the presence of at least one volatile organic compound at a temperature lower than the autoignition temperature of said at least one compound in a heated oxidant-containing media comprising the steps of:

providing a sensor comprising an uncoated reference thermistor and a coated sensing thermistor;

presenting the sensor to the at least one volatile organic compound in the heated oxidant-containing media, and thereby heating the sensor; and

measuring the change in temperature of the coated sensing thermistor as compared to the temperature of the reference thermistor, as the at least one volatile organic compound is converted into carbon dioxide and water.

2. The method of claim 1 wherein said coating on said sensing thermistor comprises a catalyst comprising one or more noble metals combined with a reducible oxide.

3. The method of claim 1 wherein said coating on said sensing thermistor comprises a catalytic material in powdered, granular, or monolithic form.

4. The method of claim 1 wherein said at least one volatile organic compound is selected from the group consisting of hydrocarbons and oxygen-containing compounds.

5. The method of claim 1 wherein said at least one volatile organic compound is selected from the group consisting of methane, ethane, propane, butane, pentane, alcohol, ketone, ether, epoxide, aldehyde, and carboxylic acid.

6. The method of claim 1 wherein the alcohol is selected from the group consisting of methanol, ethanol, propanol, and isopropyl alcohol.

7. The method of claim 1, wherein the reference thermistor is an uncoated 8 kilo-Ohm thermistor and the coated sensing thermistor is a 8 kilo-Ohm thermistor, and the coating on said coated sensing thermistor comprises a catalytic material which exothermically oxidizes volatile organic compounds to carbon dioxide and water.
8. The method of claim 7 wherein catalytic material comprises one or more noble metals combined with a reducible oxide.
9. The method of claim 7 wherein said catalytic material in powdered, granular, or monolithic form.
10. A method for detecting the presence of at least one volatile organic compound at a temperature lower than the autoignition temperature of said at least one compound in a heated oxidant-containing media comprising the steps of:
 - providing a heated sensor comprising an uncoated reference thermistor and a coated sensing thermistor;
 - presenting the heated sensor to one of the at least one volatile organic compound in a heated oxidant-containing media and the at least one volatile organic compound in an unheated oxidant-containing media; and
 - measuring the change in temperature of the coated sensing thermistor as compared to reference thermistor, as the at least one volatile organic compound is converted into carbon dioxide and water.
11. The method of claim 10 wherein said coating on said sensing thermistor comprises a catalyst comprising one or more noble metals combined with a reducible oxide.
12. The method of claim 10 wherein said coating on said sensing thermistor comprises a catalytic material in powdered, granular, or monolithic form.

13. The method of claim 10 wherein said at least one volatile organic compound is selected from the group consisting of hydrocarbons and oxygen-containing compounds.

14. The method of claim 10 wherein said at least one volatile organic compound is selected from the group consisting of methane, ethane, propane, butane, pentane, alcohol, ketone, ether, epoxide, aldehyde, and carboxylic acid.

15. The method of claim 10 wherein the alcohol is selected from the group consisting of methanol, ethanol, propanol, and isopropyl alcohol.

16. The method of claim 10, wherein the reference thermistor is an uncoated 8 kilo-Ohm thermistor and the coated sensing thermistor is a 8 kilo-Ohm thermistor, and the coating on said coated sensing thermistor comprises a catalytic material which exothermically oxidizes volatile organic compounds to carbon dioxide and water.

17. The method of claim 16 wherein said coating on said sensing thermistor comprises a catalyst comprising one or more noble metals combined with a reducible oxide.

18. The method of claim 16 wherein said coating on said sensing thermistor comprises a catalytic material in powdered, granular, or monolithic form.